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CERTIFICATE

This certificate is issued in support of an application for Patent registration in a country outside New Zealand pursuant to the Patents Act 1953 and the Regulations thereunder.

I hereby certify that the annexed is a true copy of the Provisional Specification as filed on 7 July 1997 with an application for Letters Patent number 328269 made by SEALED AIR (NZ) LTD.

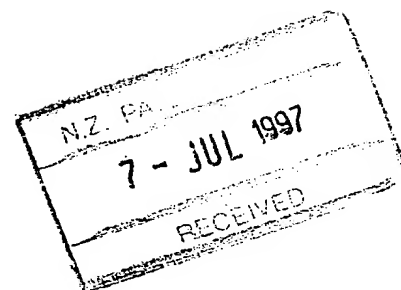
Dated 05 October 1998.



Neville Harris
Commissioner of Patents



328269



PATENTS FORM NO. 4

Appln Fee: \$80.00

James & Wells Ref: 23373/1

PATENTS ACT 1953
PROVISIONAL SPECIFICATION

Bag Making and Dispensing Apparatus

I/WE Sealed Air (NZ) Limited, corner Avalon Drive and Foreman
 Road, Hamilton, New Zealand

do hereby declare this invention to be described in the following
statement:

Bag Making and Dispensing Apparatus

TECHNICAL FIELD

This invention relates to apparatus for making and presenting bags.

BACKGROUND ART

Apparatus for making and presenting bags of different lengths to suit the individual characteristics of articles to be packaged is known. Commonly bags are made from a tubestock or a folded laminar of plastics film.

One form of apparatus is described in US Patent No. 3553934 (Johnson). In this case bags of different widths and lengths are fabricated from a folded laminar.

In another form of apparatus such as that described in US Patent No. 4425988 (Amplas Inc.), bags of varying length are made from tubestock.

Where bags are made from a folded laminar of plastics film, the depth of the folded laminar is designed and must cater for larger bags and when smaller bags are cut from the laminar there is considerable wastage and for this reason the making of bags from a laminar of tubestock is favoured. However, whilst some wastage is avoided by using tubestock the width of the tubestock is restricting in terms of overall bag size variations which can be offered.

It is an object of the present invention to provide methods and apparatus whereby bags of different widths and depths can be made from tubestock and presented by a dispensing apparatus.

Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only.

DISCLOSURE OF INVENTION

According to the broadest aspect of the present invention there is provided a method of making and presenting bags of different lengths and widths from tubestock including means for selecting bag width and determining bag length.

The present invention also includes a method of forming and presenting bags for packaging comprising predetermining by measurement of the physical characteristics of a product to be packaged and selecting the most appropriate sized package for the product.

The methodology may measure physical characteristics such as weight, width, length, depth, and on transfer to a programmed controller, the measurements can be interpreted by an analogue and/or digital device which records or converts a signal for processing.

In some instances the measuring device will be an analogue or digital measuring device and in other instances an analogue-digital measuring device.

The present invention also provides apparatus by which a plurality of webs of varying width can be delivered to a desired location (herein "packaging site").

The webs can each be fed to the packaging site from individual rolls of tubestock via a sealing and cutting apparatus.

Two or more sealing and cutting apparatus may be used to dispense released web in the form of bags at the packaging site.

The apparatus may also include control means which is programmed to receive product data and select the most appropriate bag size from the available webs and to dispense these on an automatic or on-demand basis at the packaging site.

In another form of the present invention there is provided a bag making and dispensing apparatus comprising adjacent sets sealing and cutting apparatus each adapted to form and dispense packaging elements of different sizes from separate web supply means and control means operable to dispense packaging elements on a continuous, intermittent or on-demand bases from said adjacent sealing and cutting apparatus.

The control means can be adapted to receive data from measurement devices the function of which is to interpret the data and to make an appropriate selection as to packaging element length and width and to activate the most appropriate package sealing and cutting apparatus.

Further aspects of the present invention will become apparent from the following description which is given by way of example only and with reference to the accompanying drawings in which:

Figure 1 is a plan view of an apparatus in accordance with one possible embodiment of the present invention; and

Figure 2 & 3 are side and end views of the apparatus of Figure 1; and

Figure 4 is a general elevational view of one component of an adjacent set of the sealing and cutting apparatus of the present invention

Figures 5 & 6 are diagrammatic elevations of other aspects of apparatus in accordance with the present invention.

BEST MODES FOR CARRYING OUT THE INVENTION

With respect to the drawings the present invention provides an apparatus and method for presenting bags of different lengths and widths from a laminar or web dispensed from rolls A and B respectively. The free ends of the laminars are fed from rolls A, B to adjacent sealing and cutting heads generally indicated by arrow 1. Each of the sealing and cutting head provides means by which a horizontal seal can be made in the laminar 2 and for cutting the laminar. The relative positions of the sealing and cutting means determine the bag orientation, that is, whether the bag is dispensed open or closed end first.

In the present instance because bags are dispensed on a vertical plane it is preferable for the ends of formed bags to be temporarily secured by rolls, clamps or other gripping means such as suction cups.

Figure 4 of the drawings illustrates a bag making apparatus 1 which produces bags from tubestock. As previously indicated the apparatus of Figures 1 to 3 provides two adjacent sets of sealing and cutting apparatus each being supplied with tubestock webs of different widths. The apparatus delivers separate bags of selected width and depth to a common packaging site where an operator receives the bags. Because the adjacent sets of sealing and cutting apparatus are identical Figure is illustrative of one unit of the set, the other set being in an opposite hand position adjacent the illustrated unit. This apparatus provides a support arrangement generally indicated by arrow 20 with respect to which a roll

of tubestock is mounted. The tubestock web 21 is fed via rollers 22, 23 to a sealing and cutting assembly generally indicated by arrow 24.

Typically support arrangements 20 such as that illustrated are provided with a braking means, in the present case an adjustable shoe brake arrangement 25 performs this function.

The elements of the sealing and cutting assembly 24 include an alignment roller 26, a nip roller assembly indicated by arrow 27, a sealing and cutting head indicated by arrow 28, drive means generally indicated by arrow 29 and dispensing means generally indicated by arrow 30.

Sealing and cutting assemblies such as that illustrated are well known. In the illustrated example nip roller assembly 27 includes a fixed roller 32, a reciprocal roller 33 which can be advanced and retracted relative to the fixed roller 32 by a cylinder 34. The assembly further includes a clamping and sealing head 35 and anvil 36 and cutter 37. The head 35 and cutter 37 are advanced and retracted by a cylinder 38.

The drive 29 comprises a motor 39, and a transmission including wheels 40, and a belt 41.

Dispensing means 30 includes two spaced wall members 42 defining a passage for a bag 31 formed by the sealing and cutting head 24.

The bag making and dispensing apparatus illustrated is for dispensing bags from an "overhead" position and as such it is desirable that means such as rollers, suction cups, or the like be provided so that a bag can be suspended in the dispensing means 30 for manual release. In the present case a cylinder driven suspension clamp 43 which operates against an anvil face 44 performs this function.

In operation the nip roller assembly 27 is controlled to advance the web 21 either continuously intermittently or on an on demand basis. The sealing and cutting head is operable to seal and cut a selected length of web to produce bag after bag, and on an on demand mode, the bag is held for subsequent manual release by clamp 43. To form a bag web 21 is advanced by the nip roller assembly 27, upper and lower jaws associated with the head 35 secure the web 21 leaving a space between for cutter 37 to be advanced. The lower jaw makes a cross-wise seal in the web and the web is released in the form of a bag 31 by advancing cutter 37. The clamp may be operated to clasp the sealed and released end of a bag 31 against anvil face 44. At that stage the end of bag 31 extends from the chute 30.

Figures 5 to 6 of the drawings illustrate various means by which bag selection and length can be made automatically or semi-automatically. For example in Figure 5 length determining devices 3 associated with control means (not shown) for determining bag length are provided. The devices 2 can be in a fixed position or be free for an operator to position same.

In another example illustrated by Figure 6 a weighing device and length determining device is associated via control means with adjacent sealing and cutting heads 1.

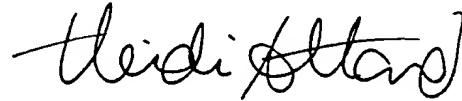
The size input device may be a vision system, and may include photo eyes proximity sensors and the like working independently or in conjunction with one another.

Our New Zealand Patent Application No. 286910/299534 describes one form of length measuring device which could be used with the multi-web dispensing device of the present invention.

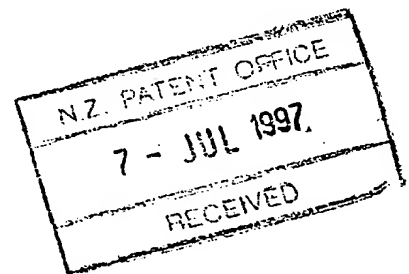
Aspects of the present invention have been described by way of example only and it should be appreciated that modifications and additions may be made thereto without departing from the scope thereof.

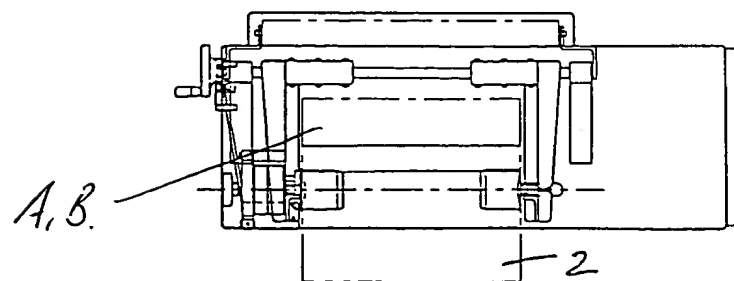
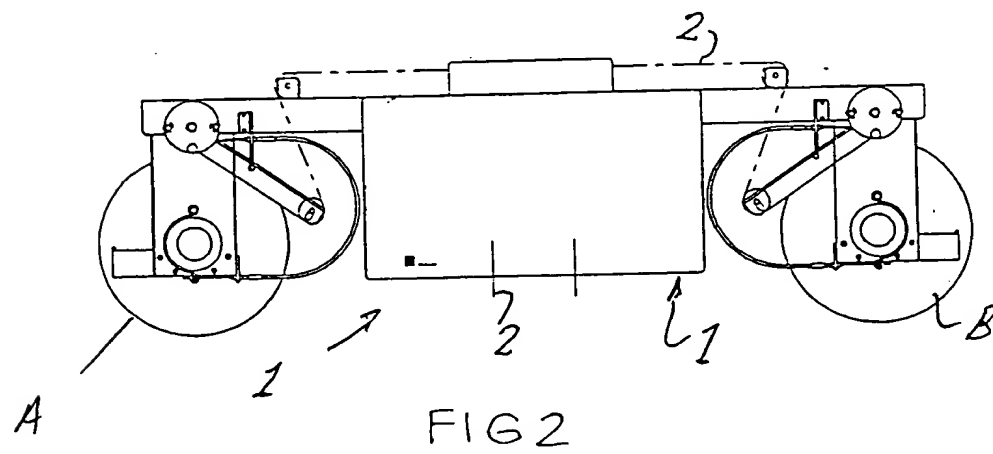
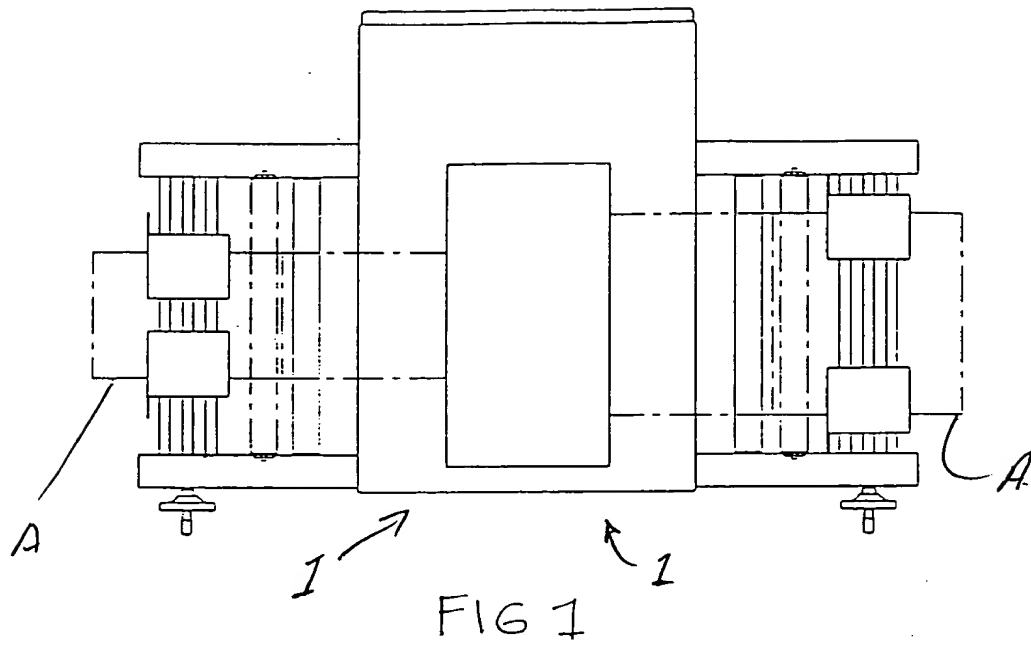
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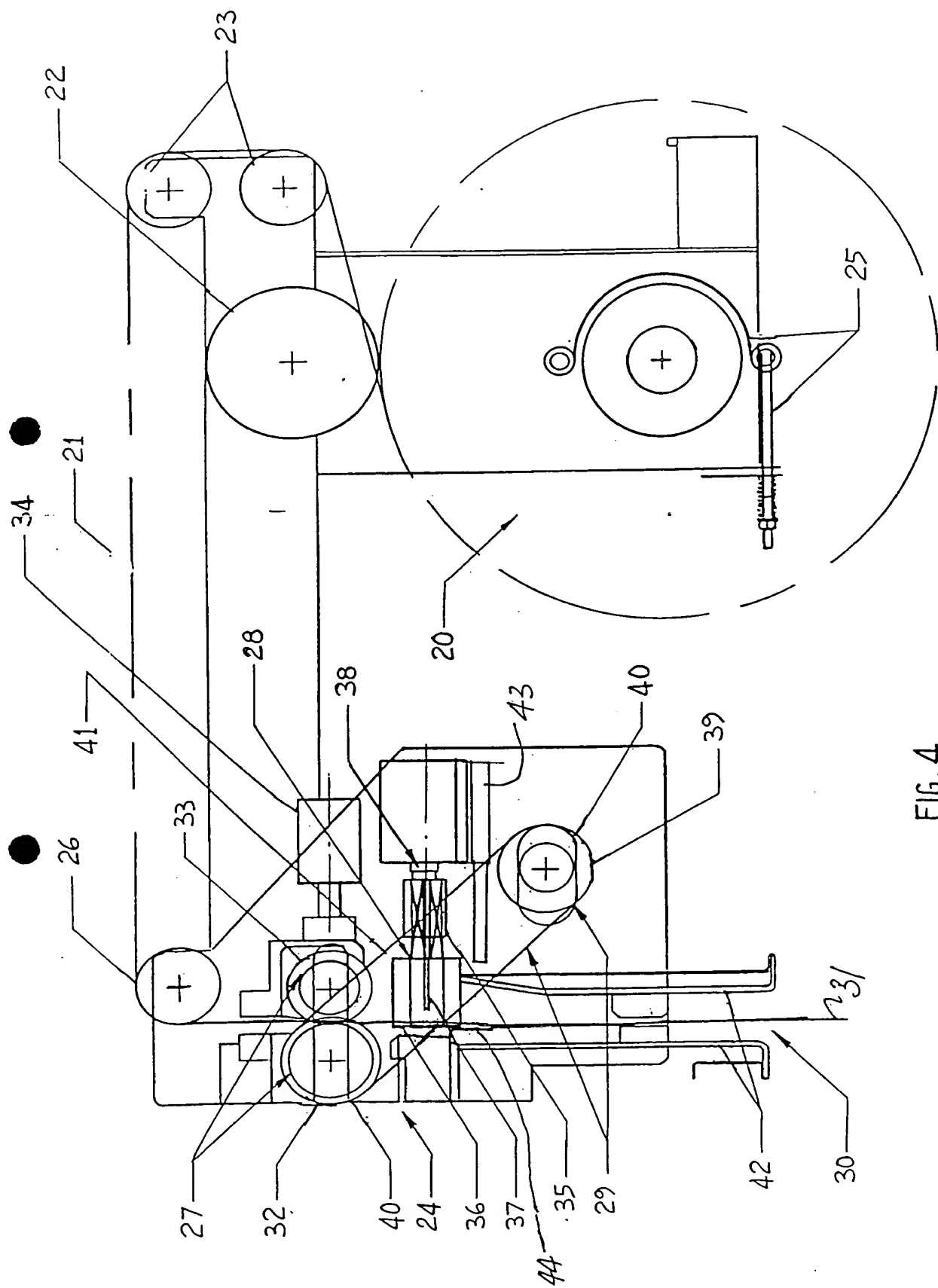


FIG. 4

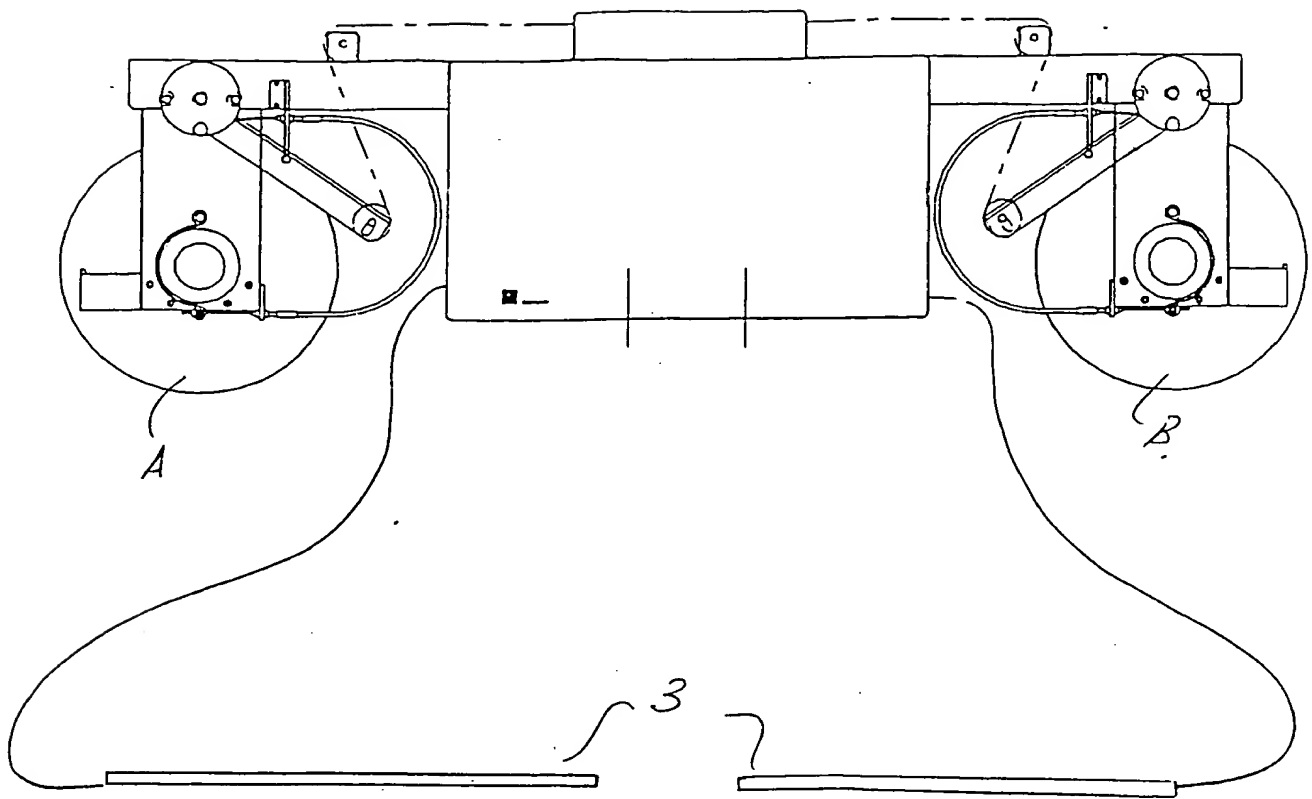


FIG. 5

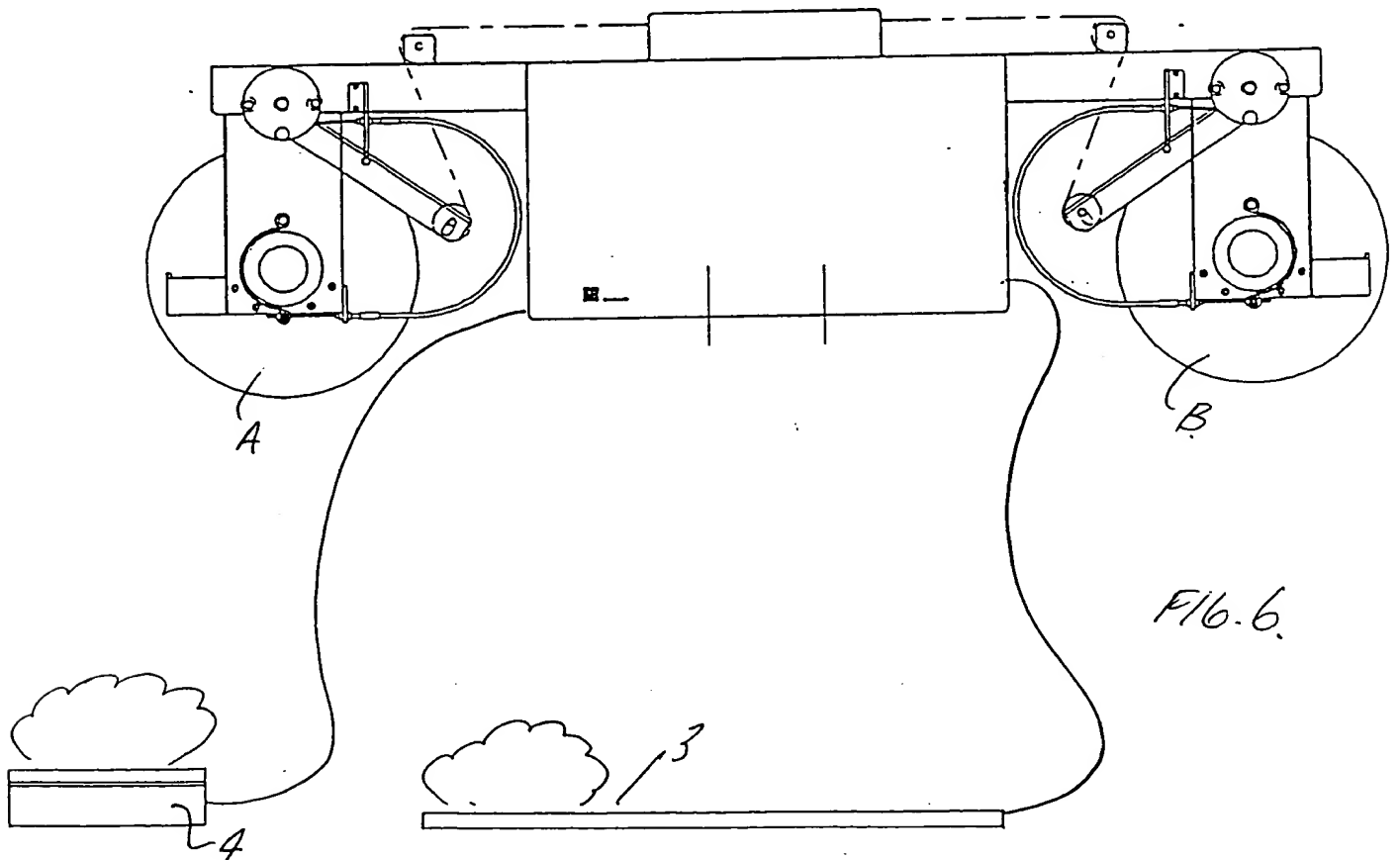


FIG. 6